

# Completed Return-On-Investment Project Case Study



United States Department of Energy  
Office of Environmental Management  
Fact Sheet

## Tritium Facility CFC Elimination Savannah River Site, South Carolina

### Original Problem

At SRS's Tritium Facilities, uranium degreasing is performed to provide clean depleted uranium for loading into process reactor vessels.

The uranium is received from the supplier packed in hydrocarbon oil, which must be removed. Previously, the oil is removed using multiple washes of CFC-113 (Freon) solvent.

After the "washing" process is complete, the solvent that is now contaminated with oil and low levels of radionuclides is declared mixed waste.



SRS Tritium Facility

### The ROI Project Solution

As a result of a pollution prevention opportunity assessment, an alternative process was found. The new process involves replacing Freon (an ozone depleting substance) with a DuPont Vertrel MCA, which has no negative effect on the environment and worker safety and health. In addition, a combination vapor degreasing/ultrasonic cleaning system is used for more efficient cleaning, while gaining the benefit of internal solvent recovery.

#### DOE Monetary Benefits

Cost	\$61,750
Lifecycle Savings	\$1,200,000
Return on Investment	~ 300 %

### Value Of Improvement

This process will nearly eliminate waste solvent generation at the SRS Tritium Facility. This improvement eliminated 5 cubic meters of mixed waste and saved over \$200,000 per year.

### Benefits At-A-Glance

- Improves employee health and safety
- Replaces hazardous, ozone depleting solvent – regulatory compliance
- Recycles solvents avoiding waste
- Saves ~\$200,000 and avoids ~5 m3 of mixed LLW per year

#### Lifecycle Waste Reduction

Life Cycle Waste Reduction	5 m3 Mixed
Operation Commencement Date	8/99
Project Useful Life (Years)	6 years

## **Tritium Facility CFC Elimination**

### **Savannah River Site, South Carolina**

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#### **Summary Data**

<b>ROI Priority Area:</b>	<b>New Waste Generation</b>
<b>ROI Project Type:</b>	<b>Source Reduction</b>
<b>Project Cost:</b>	<b>\$61,750</b>
<b>Lifecycle Savings:</b>	<b>\$1,200,000</b>
<b>Implementing Group:</b>	DP, SRS Defense Programs
<b>Benefiting Group:</b>	DP, SRS Defense Programs
<b>Useful Life Years:</b>	<b>6 years</b>
<b>Return On Investment:</b>	<b>300 %</b>
<b>Lifecycle Waste Reduction:</b>	<b>5 m3</b>
<b>Project Contact:</b>	Tim Coffield
<b>Phone:</b>	803-557-6316
<b>Email:</b>	<a href="mailto:tim.coffield@srs.gov">tim.coffield@srs.gov</a>

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